

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bertram SUGG
Based on : PCT/DE 03/01810
Title : Piezoelectric Actuator

Docket No. : R.302460

Customer No. : 02119

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: February 16, 2005

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97(b),
AND EXPLANATION OF THE RELEVANCE OF THE CITED PRIOR ART**

Sir:

The undersigned hereby requests that the prior art cited on the attached prior art statement be placed of record in the application file and be considered by the examiner.

This citation of prior art is made under 37 CFR 1.97(b), since it is being filed within three months of the filing date and before the mailing of a first Office action.

The relevance of the prior art cited on the attached form 1449 is as follows:

Appl. No. Unknown
IDS under 1.97(b)
Prior to first Office Action

DE 41 07 158 A1

This patent teaches a laminar longitudinal-effect type piezoelectric or electro-strictive driver which is displaced upon application of an electric field thereto. The driver includes laminar electro-mechanical converting elements. Each element undergoes a displacement in a direction of the electric field due to the longitudinal mode of the reverse piezoelectric effect or the electro-strictive effect. The driver also includes temperature compensating elements, each of which is interposed between the appropriate adjacent two laminar electro-mechanical converting elements. The temperature compensating elements have a higher coefficient of linear thermal expansion in the direction of the electric field or direction of displacement of the driver. The driver is suitably usable for an actuator for operating a print element of a printer.

US 5,126,618

This patent is in the same family as DE 41 07 158 A1 and is provided as an aid to the examiner.

EP 0 603 835 A1

This patent teaches a piezoelectric actuator with strain gauges. The strain gauges (81, 82, 83) are adhered to protective layers (31, 32) and an active portion (2) of a laminated-structure (10) of the piezoelectric actuator, respectively. Since it is possible to measure a total amount of displacement of the protective layers (31, 32) and the active portion (2), the measured amount of displacement of the laminated structure (10) is accurate even if there are differences in strain due to temperature and stress between them. The same effect can be

Appl. No. Unknown
IDS under 1.97(b)
Prior to first Office Action

obtained for such an actuator whose laminated structure (10) further includes any member such as a temperature compensating member (19) of metal whose elastic modulus is different from that of the laminated structure.

DE 197 53 930 A1

This patent teaches a method for mounting external electrodes (5) on stacked semiconductor actuators (1) consisting of a plurality of thin layers of electro-mechanically active material with internal metal electrodes (14). The electrodes are placed in between and are alternately brought out or insulated. The internal electrodes which protrude above a metallic base coating (2) are electrically connected in parallel and are linked to an external electrode (5). In order to extend the field of application and to increase service life, a three-dimensional electrically conductive structure is used as an external electrode (5). Said structure can be extended in the direction of the actuator axis and the external electrode (5) is pressed against the metallic base coating in order to produce an electrical contact.

DE 199 28 178 A1

This patent teaches a piezo-actuator which has a multilayer construction of piezo layers and intermediate electrodes. Lateral contacting of the electrodes is alternated, with a neutral phase without an electrode layer in the region between piezo layers with electrodes contacted on opposite sides, and a division of the multilayer structure into sub-actuators (11-13) stacked one above the other and connected together via a neutral layer (18,19).

Appl. No. Unknown
IDS under 1.97(b)
Prior to first Office Action

DE 100 25 998 A1

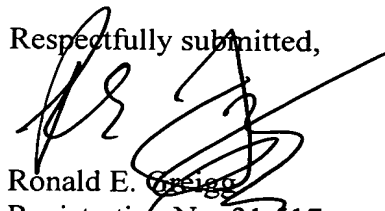
This patent teaches a piezoelectric actuator for actuating a mechanical component. The inventive piezoelectric actuator comprises a stratified structure of piezoelectric layers (2) and can be subjected to an electric potential in a piezoelectrically active area (A) via inner electrodes (3, 4) that are interposed between the layers. At least one inactive area (B, C) is present at one end of the active area (A), in the area of the overall length (L_{ges}) in the layer structure of the piezoelectric actuator (1; 6; 7). A predetermined number (n) of piezoelectric layers (2) is disposed in the active area (A) and the length of at least one inactive area (B, C) is adapted to the required overall length (L_{ges}) of the piezoelectric actuator (1; 6; 7).

WO 01/91198 A1

This patent is in the same family as DE 100 25 998 A1 and is provided as an aid to the examiner.

Examination of this application is respectfully requested.

Respectfully submitted,



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INFORMATION DISCLOSURE CITATION
(Use several sheets if necessary)

Docket Number (Optional)

R.302460

Application Number

10/524788

Applicant(s)

Bertram SUGG DT12 Rec'd PCT/PTO 16 FEB 2005

Filing Date

Group Art Unit

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5,126,618	06-30-1992	Yoshikazu TAKAHASHI et al.			

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO
		DE 41 07 158 A1	09-12-1991	Germany			✓	
		EP 0 603 835 A1	06-29-1994	European			✓	
		DE 197 53 930 A1	06-10-1999	Germany				✓
		DE 199 28 178 A1	08-10-2000	Germany				✓
		DE 100 25 998 A1	12-06-2001	Germany				✓

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER	DATE CONSIDERED
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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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U.S. PATENT APPLICATION PUBLICATIONS

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FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO
		WO 01/91198 A1	11-29-2001	World IPO				✓

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